

What is Claimed:

1 1. A method of using z-transform calculations to
2 encode carrier signal independent data to a digital
3 sample stream

1 2. A method according to claim 1, wherein said
2 carrier signal independent data comprises digital
3 watermark data.

1 3. A method according to claim 1, wherein location
2 and parameters vary based on a position of the
3 watermarking party in a distribution chain and what
4 type and how much information that party needs to
5 encode and decode in a watermark.

1 4. A method of using z-transform calculations to
2 decode carrier signal independent data from a digital
3 sample stream.

1 5. A method according to claim 4, wherein said
2 carrier signal independent data comprises digital
3 watermark data.

1 6. A method according to claim 4, wherein location
2 and parameters vary based on a position of the
3 watermarking party in a distribution chain and what
4 type and how much information that party needs to
5 encode and decode in a watermark.

1 7. A method of analyzing deterministic and non-
 2 deterministic component of a signal, wherein said
 3 signal is comprised of a digital sample stream, for
 4 the purposes of encoding carrier signal independent
 5 data to the digital sample stream, and encoding said
 6 carrier signal independent data in a manner such that
 7 it is restricted to or concentrated primarily in the
 8 non-deterministic signal components of the carrier
 9 signal,

10 wherein said signal components consist of at
 11 least one of:

- 12 a discrete series of digital samples; and
- 13 a discrete series of carrier frequency sub-
- 14 bands of the carrier signal.

1 8. A method according to claim 7, wherein said
 2 carrier signal independent data comprises digital
 3 watermark data.

1 9. A method according to claim 7, wherein location
 2 and parameters vary based on a position of the
 3 watermarking party in a distribution chain and what
 4 type and how much information that party needs to
 5 encode and decode in a watermark.

1 10. A method of using z-transform calculations to
 2 measure a desirability of particular locations in a
 3 sample stream in which to encode carrier signal
 4 independent data, wherein the desirability is
 5 comprised of a difficulty in predicting a component of
 6 the sample stream at a location which can be measured
 7 by an error function, wherein the component and
 8 location may be comprised of information regarding at
 9 least one of the following: wave, amplitude,
 10 frequency, band energy, or phase energy.

1 11. A method according to claim 10, wherein said
 2 carrier signal independent data comprises digital
 3 watermark data.

1 12. A method according to claim 10, further
 2 comprising a step of performing the z-transform of the
 3 input sample series.

1 13. A method according to claim 12, further
 2 comprising a step of performing an inverse z-transform
 3 to produce an estimated sample series including an
 4 estimate of the signal represented by the digital
 5 sample series.

1 14. A method according to claim 13, further
 2 comprising a step of computing an error function of

3 the estimated sample series versus the original input
4 sample series.

1 15. A method according to claim 14, further
2 comprising a step of using a computed error function
3 data as a measure of the desirability of a location
4 for encoding watermark information.

1 16. A method according to claim 14, further
2 comprising a step of determining a maximized error
3 function to determine an optimal watermark location
4 for encoding.

1 17. A method of encoding digital watermarks at
2 varying locations in a sample stream with varying
3 envelope parameters.

1 18. A method of using z-transform calculations to
2 determine portions of a signal which may be
3 successfully compressed or eliminated using certain
4 processing techniques.

1 19. A method of using z-transform calculations to
2 determine portions of a signal which may be
3 successfully compressed or eliminated using certain
4 processing techniques, without adverse impact on
5 signal quality.

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